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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/612,548

07/07/2000

Hiromi Shikata

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9368

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7590

06/07/2004

FOLEY AND LARDNER
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

LE, BRIAN Q

ART UNIT

PAPER NUMBER

2623

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/612,548

Applicant(s)

SHIKATA, HIROMI

Examiner

Brian Q Le

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,10,14-17,19-24 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-9, 11-13, 18, 25-29, and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/03/2004 has been entered.

Response to Amendment and Arguments

2. Applicant's amendment filed 12/04/2003, has been entered and made of record.
3. Applicant's arguments with regard to claim 1 have been fully considered, but are not considered persuasive because of the following reasons:

The Applicant's Representative argues (please refer back to "statement of the substance of interview") that Hashima does not disclose the concept of normalized correlation coefficient". As discussed in the final Office Action, the Examiner asserted that Hashima teaches the concept computing normalized correlation operation. Thus it is implicit that normalized correlation coefficient is the result of normalized correlation operation. In addition, the Applicant's Representative argues that the "low" and "high" features are not disclosed or suggested by Hashima. Due to the broadly claimed language, one skilled in the art can interpret that FIG. 5 of Hashima clearly teaches the concept of values of density distribution of said foreground and said background of said reference image is high, and another is low.

Regarding claim 12, the Applicant's Representative further argues that the background density data is not used in the equations for computing the auto- and cross-correlation, is not disclosed by Hashima. Nowhere in the claim 12, the Applicant has filed this claim limitation.

Thus, the rejections of all of the claims are maintained.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Regarding claims 1, 4-6, and 12, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). Claims not specifically addressed depend from indefinite antecedent claims.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

7. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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7. Claims 1, 4-6, 11, 12, 18, 25-28, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Hashima U.S. Patent No. 6,115,505.

Regarding claim 1, Hashima teaches a method of recognizing an object (Abstract) based on pattern matching (FIG. 1, element 180) using a gray-scale (FIG. 9) normalized correlation method (FIG. 1, elements 140 and 150; column 7, lines 57-66; column 8, lines 1-14; column 1, line 67 and column 2, lines 1-17), comprising the steps of:

Storing a reference image including a foreground and a background, said foreground and said background each having a predetermined value of density distribution (FIG. 5; column 1, lines 59-62 and column 7, lines 3-23 and 39-45);

Inputting an image of the object (FIG. 1, element 110) said image including a foreground and a background, said foreground and said background each having a predetermined average value of density distribution (column 1, lines 63-67);

Storing a function for giving said predetermined values of density distribution of said reference image corresponding to said predetermined average values of density distribution of said input image, respectively (column 15, lines 29-34), said function providing a predetermined form pattern (abstract, first 2 lines), such that one of said predetermined values of density distribution (the process of arranging the density value of object or background) (column 9, lines 7-20 and 25-30) of said foreground and said background of said reference image is high, and another is low (FIG. 5); and

Obtaining a normalized correlation coefficient between said reference image and said input image using said function (column 16, lines 27-30).

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Regarding claim 4, Hashima teaches a method wherein said function is obtained by designating a pattern of said reference image (column 1, lines 60-65), overlaying (superimpose) (column 9, lines 31-40) an image of said pattern on said input image, and designating one of a predetermined average value of density distribution of said image and a predetermined value of density of said image (column 4, lines 1-13 and column 8, lines 48-65).

For claim 5, Hashima teaches the method wherein said function is obtained by extracting (cutting out) an outline of the object, overlaying an image of said outline on said input image, and designating one of a predetermined average density distribution of said image and a predetermined value of density of said image (column 8, lines 15-65).

Referring to claim 6, Hashima teaches the method wherein said normalized correlation coefficient is obtained from simple summation of a cross-correlation coefficient (column 8, lines 1-5).

For claim 11, please refer back to claim 6.

For claim 12, please refer back to claim 1. In addition, Hashima teaches a medium for recording (column 1, line 60) a computer program (column 13, line 40) to process the limitations in claim 12.

Regarding claim 18, please refer back to claim 1 for the explanation.

For claims 25-27, please refer back to claims 4-6 for further explanation.

Regarding claim 28, Hashima teaches the method wherein the calculating step is carried out respect to the normalized correlation coefficient between the foreground of the reference image and the foreground (noticed area of the image is foreground) of the input image only (column 5, lines 5-10).

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Regarding claim 30, please refer back to claim 1 for further explanation.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 7-9, 13 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashima U.S. Patent No. 6,115,505 and further in view of Molley U.S. Patent No. 5,060,282.

Regarding claim 7, please refer back to claim 1 for the explanation. Hashima does not explicitly teach the concept wherein an equation of an autocorrelation coefficient of each of said reference image and said input image and an equation of a cross-correlation coefficient between said reference images and said input image. Molley teaches a pattern recognition architecture which further teaches the concept of equation of an autocorrelation coefficient of each of said reference image and said input image and an equation of a cross-correlation coefficient between said reference image and said input image (column 2, lines 35-50). Modifying Hashima's method of recognizing an object by pattern matching according to Molley would be able to improve the correlation calculation between the mismatch between the template and image. This would improve processing and therefore, it would have been obvious to one of ordinary skill in the art to modify Hashima according to Molley.

For claims 8 and 9, please refer back to claims 4 and 5 respectively for the teaching citations.

Regarding claim 13, please refer back to claim 7 for further explanation.

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Regarding claim 29, please refer back to claim 7 for the explanation.

Cited Reference

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to object recognition, pattern-matching processing with auto and cross-correlation correlations:

U.S. Patent No. 5,815,597 to Horner, teaches binary encoding of gray scale nonlinear joint transform correlators.

U.S. Patent No. 6,330,361 to Mitchell, teaches adaptively aligned optical correlator and method.

U.S. Patent No. 5,748,775 to Tsuchikawa, teaches method for moving object extraction based on background subtraction.

Contact Information

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q Le whose telephone number is 703-305-5083. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-5397 for regular communications and 703-308-5397 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

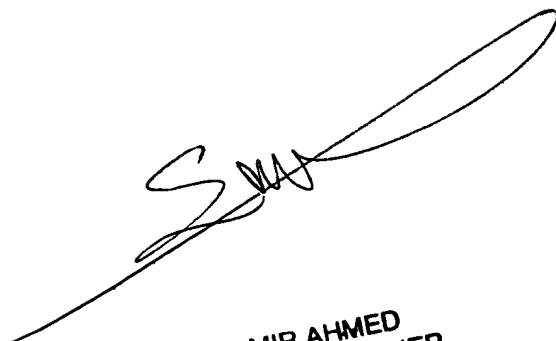
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May 19, 2004

A handwritten signature in black ink, appearing to be 'S. Ahmed', written diagonally across the page.

**SAMIR AHMED
PRIMARY EXAMINER**